ESCO

WORLD CLASS. WORLDWIDE.

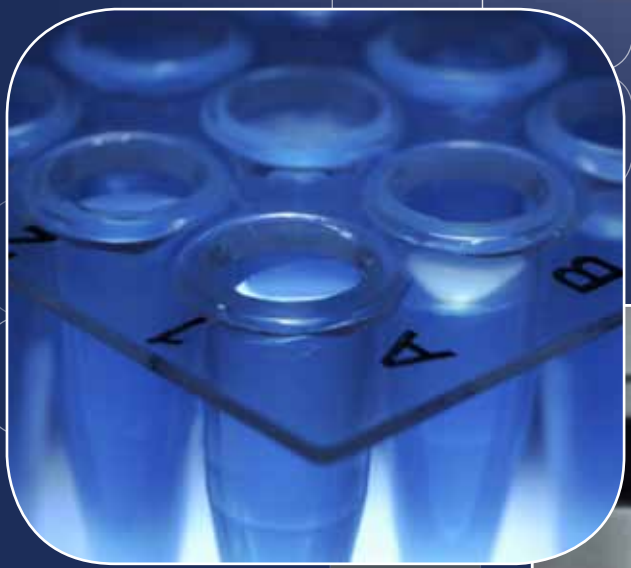
Green Product

Lexicon® II

with New Aalto Controller

Ultra-low Temperature Freezer

Uncompromised Protection for your Samples



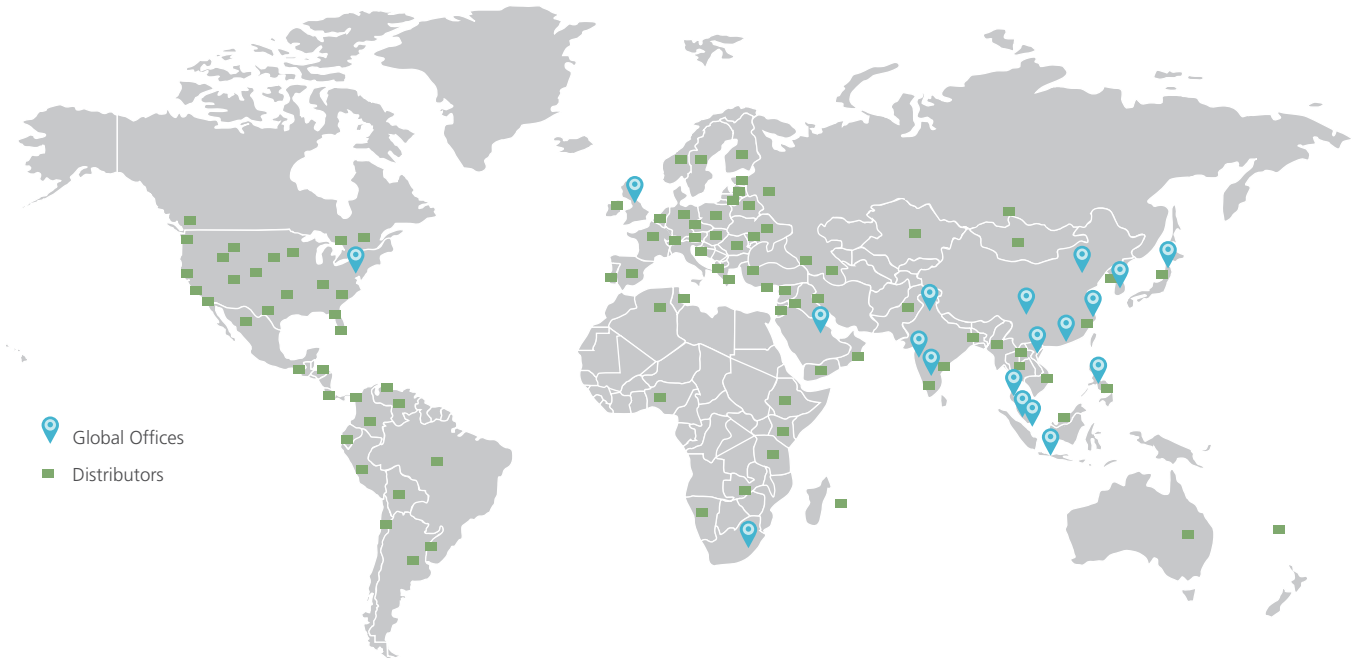
Designed in the USA

Welcome to Esco

Esco's Vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.

- A leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions.
- A world leader in biological safety cabinets.
- Esco has established offices in 13 countries such as Bahrain, China, India, Japan, Korea, Malaysia, Philippines, Singapore, South Africa, UK, US, Indonesia and Vietnam and is continually expanding.
- North American facilities in Pennsylvania; sales, service, logistics for US & Canada.
- Group total of more than 600 employees.
- Distributors in more than 100 countries.
- Products independently tested to international standards.
- Large R&D investments, world leading technologies.
- State-of-the-art production; vertically integrated manufacturing floor space.
- Worldwide service played out over a geographic expanse so broad that the sun never sets on what we do.

GLOBAL NETWORK



PRODUCTS AND APPLICATION

Esco Life Science Tools

Laboratory Equipment

Biosafety and Laminar Flow

- Class II Type A2 Biological Safety Cabinets
- Class II Type B2 Biological Safety Cabinets
- Class III Biological Safety Cabinets
- Horizontal Laminar Flow Clean Benches
- Vertical Laminar Flow Clean Benches
- Laboratory Animal Research Workstations
- PCR Cabinets

Fume Hoods

- Laboratory Fume Hoods
- Ductless Fume Hoods
- Fume Scrubbers
- Exhaust Blowers
- Fume Hood Airflow Monitors

PCR

- PCR Thermal Cyclers
- *Not Available in North America*

Incubators and Ovens

- Forced Convection Laboratory Ovens
- Forced Convection Laboratory Incubators
- Refrigerated Incubators
- CO_2 Incubators
- Remote Monitoring, Data Logging, and Programming Software

Cold Storage

- Laboratory Refrigerators
- Laboratory Freezers
- Laboratory Combination Freezers
- Ultra-low Temperature Freezers

Medical Equipment

Assisted Reproductive Technology

- ART Workstations
- CO_2 Incubators with Suppressed O_2
- Multi-room Incubators

Pharmaceutical Equipment

Containment / Compounding Pharmacy

- Downflow Booths
- Powder Weighing Balance Enclosures
- Pharmacy Isolators
- Cytotoxic Safety Cabinets
- Soft Capsule
- Air Showers
- Straddle Units
- Garment Storage Cabinets
- Pass Boxes
- Transfer Hatches

- **Your samples are precious, unique, non-replaceable, and represent your life's work**
- **The mission of an ultra-low temperature (ULT) freezer is simple. Protect your samples by keeping them cold. Until you say otherwise.**
- **If anything will interfere with this mission, your freezer should let you know before it becomes a problem.**
- **Esco understands, and we have your solution.**

INTRODUCING THE LEXICON® II SERIES ULTRA-LOW TEMPERATURE FREEZER

The Lexicon® II series ULT freezer incorporates the best and most complete sample protection and sample organization system of any ULT manufacturer

Key Elements of True Sample Protection

A proactive Predictive Failure Monitoring System (PFMS)

Interactive Sample Inventory System with Access from the Freezer Controller

Event Monitoring Sytem AND Wi-Fi/Network Notification System

Freezer Sample Security System with password/keycard and Electronic Door Lock

Central Control and Monitoring System

72 Hour Backup Battery

Remote Monitoring and Contact Service

LCO_2 or LN_2 Back-up System

Completely Redundant Monitoring System

PREDICTIVE FAILURE MONITORING SYSTEM (PFMS) (PATENT PENDING)

- What better way to protect samples than to alert users to an upcoming problem BEFORE the actual problem occurs
- Esco's revolutionary predictive failure monitoring system knows how your freezer is supposed to perform. By carefully monitoring the freezer's refrigeration system internals, the predictive failure monitoring system can alert users to many freezer problems while the freezer can still maintain the set temperature to protect your samples

- If an alert is necessary, the freezer can notify an assigned contact by email with the use of its Wi-Fi or Ethernet connected systems or by SMS messaging with the optional SMS modem

EVENT MONITORING AND WI-FI/NETWORK NOTIFICATION SYSTEM

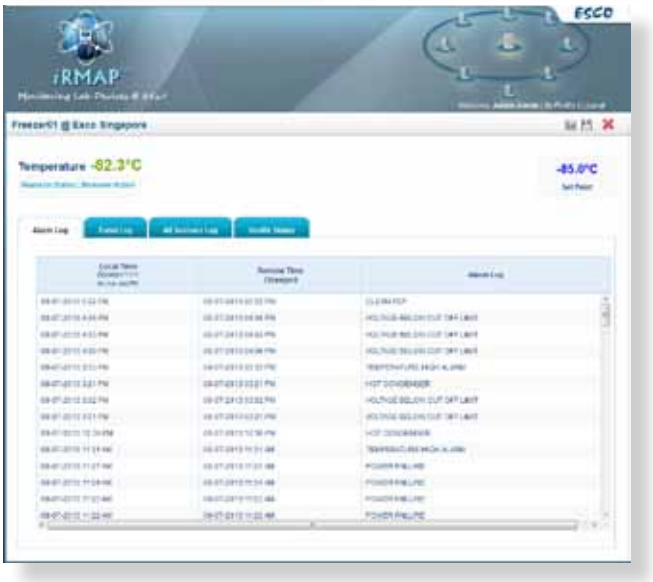
- Trying to figure out who accessed the freezer last? How long the door was opened? What freezer events happened when? The new freezer event monitoring system can record events for at least 15 year!

- The event monitoring and alert subsystem is always on guard to protect your samples. The system can classify alerts into yellow cautions and serious red conditions. If the door is left open for too long then a yellow alert is created. If the open door condition causes serious temperature change then the condition is escalated to a red alert
- The controller always sounds an alarm locally but is smart enough to alert specific users by email depending on the severity of alert.

CENTRAL CONTROL AND MONITORING SYSTEM – Voyager^{G3} SOFTWARE

- Voyager^{G3} software can act as the central nexus for your Esco connected devices. Lexicon II freezers with the Aalto platinum controller can communicate with Voyager^{G3} by facility Wi-Fi or Ethernet connectivity
- All information is kept securely inside the facility firewall. Once connected, Voyager^{G3} can notify users from a central location of any freezer alert or condition that can threaten sample safety or integrity
- All setup and configuration profiles of Lexicon II freezers with the Aalto platinum controller can easily be cloned from one freezer to the next. Simple and easy from one single location

• Voyager[G3] can communicate with the available intelligent Remote Monitoring Application Protocol service (iRMAP)



INTELLIGENT REMOTE MONITORING APPLICATION SERVICE – iRMAP MONITORING SERVICE

- If the user elects to transmit data outside of their facility, then Voyager[G3] will encrypt the data twice and allow the freezer data to be monitored by iRMAP services at the Esco monitoring headquarters
- In the event of issues that could threaten customer samples, an iRMAP monitoring team member will contact the customer or an assigned customer contact until the situation is resolved or the samples are again placed into secure cold storage. The iRMAP team member will continue to reach their contact(s) until the samples are safe
- iRMAP in conjunction with the Predictive Failure Monitoring System can also monitor the health of the freezer and proactively dispatch service to correct pending and future freezer issues that could threaten customer samples

REDUNDANT MONITORING SYSTEM – PROtect

- Your samples are precious and every precaution has to be taken to PROtect their integrity. In case of a severe failure, the Esco PROtect wireless monitoring system can monitor your freezer or other cold storage system to make sure your samples are maintained at the correct temperature
- The monitored cold storage device communicates to the central monitoring computer by radio frequency transmission allowing for long communication distances and extended battery life
- When a monitored device reaches a temperature alert, a loud audible and visual alarm can be sounded as well as sending an email alert.
- Multiple installations in remote buildings can be monitored and multiple users can access the system simultaneously.

LCO_2 OR LN_2 BACK-UP SYSTEM

- A backup system keeps your samples at desired temperatures when the refrigeration system cannot.
- Simply supply the backup system with an adequate CO_2 or LN_2gas supply and your samples will be protected when power fails
- No ULT system that stores critical samples should be without a CO_2 or LN_2 backup system.

72 HOUR BACKUP BATTERY

- Protecting your samples during a power failure can be a challenge. In conjunction with a CO_2 or LN_2 backup system and a large backup gas supply your ULT system must have an adequate supply of battery power to last for the duration of the power interruption.
- Unfortunately most ordinary ULT system have a backup battery that will only last 8 to 24 hours. Insufficient for many situations. The new Esco Lexicon® II ULT with the Aalto Platinum controller can be equipped with a backup battery that will last at least 72 hours! Your samples deserve the best protection.

FREEZER SECURITY SYSTEM

- Who has access to your freezer and your samples? Ordinary freezers can use a key or a padlock for security but maintaining control with these mechanical items is very difficult. Keys can be lost or taken when workers leave the lab. To change the combination of a lock requires a new lock and if you have many freezers how do you keep track of all the combinations? It can be quite maddening.

- If security is enabled by the freezer administrator, the new Lexicon® II ULT with the Aalto Platinum controller maintains complete user accounts for everyone in the laboratory. Different users can have access to different freezer controller functions. For example, a technician can just gain access to samples. However, a researcher might have control over freezer temperature. Lastly, an administrator has access to input and remove user accounts and configure all freezer settings.

- In addition, the system administrator can define if freezer access must be done by a password, a security keycard, or both a password and a security keycard to open the electronic lock on the freezer keeping your samples as secure as possible! If a worker leaves the lab, the administrator can simply delete their account keeping the samples secure.

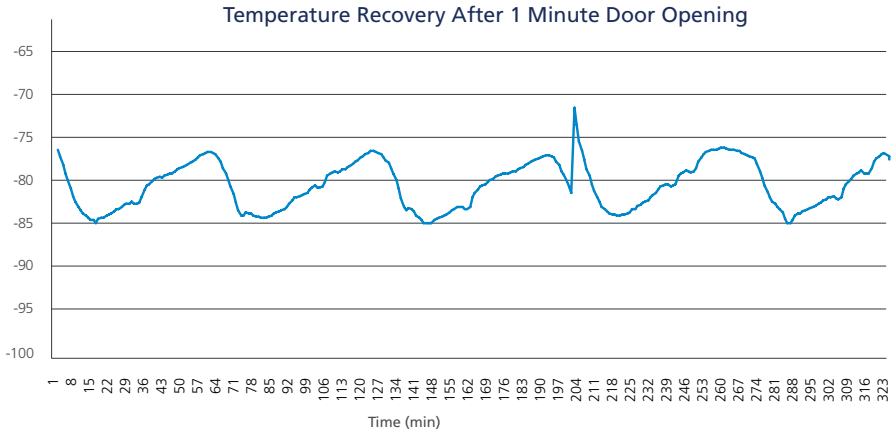
INTERACTIVE SAMPLE INVENTORY SYSTEM WITH ACCESS FROM THE FREEZER CONTROLLER – SAMPLETRACKER SAMPLE INVENTORY SYSTEM (PATENT PENDING)

- Freezers can hold many sample racks, 500 or more sample boxes, and tens of thousands of samples. Finding your individual sample can be difficult in the cold frosty environment of a ULT freezer. The longer the freezer is open while you search for samples, the more samples are warming up and subject to degradation. If you retrieve the wrong sample, the results could be disastrous.
- There is a better way. SampleTracker is a user configurable database to keep track of your samples. Create as many user fields as you want, SampleTracker can handle it. SampleTracker makes it easy to find your sample in the database and in the freezer. Search the database by one field or any number of user defined fields. Print reports for the samples you want with or without barcodes.
- Database searches can even be performed using the Lexicon II Aalto Platinum controller. Input a user ID or scan a report with a barcode using a barcode scanner on the freezer and the Aalto Platinum controller will display the sample location right on the freezer screen. Simple! If you think you know where your sample is, enter the sample ID after retrieval to confirm the sample. If it is the right one, great! If not, the freezer screen will show you the location where to return the sample.
- Once you have your sample you can check it out of the freezer right from the controller screen. When it is time to return the sample to storage, you can simply check it in from the freezer screen as well. Your samples are verified and secure with the added security of knowing the lab is using the intended samples.

SUPERIOR SAMPLE PROTECTION WITH SUPERIOR REFRIGERATION PERFORMANCE

We can use some materials from the existing brochure – However, we need a better graph. The one below shows poor temp stability before the door opening.

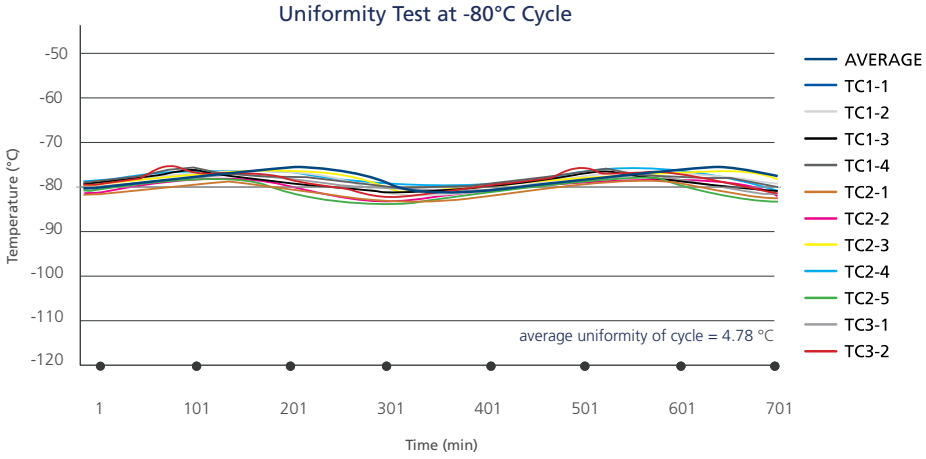
ESCO LEXICON II FREEZERS HAVE PHENOMENAL RESERVE CAPACITY TO QUICKLY RECOVER TEMPERATURE AFTER A DOOR OPENING EVENT



FAST TEMPERATURE RECOVERY AFTER DOOR OPENING

- Esco Lexicon® recovers temperature in minutes following a 1 min. door opening*. Fast recovery in temperature ensures integrity of stored samples.

SUPERIOR TEMPERATURE UNIFORMITY – ALL SAMPLES ARE MAINTAINED AT THE DESIRED SET TEMPERATURE



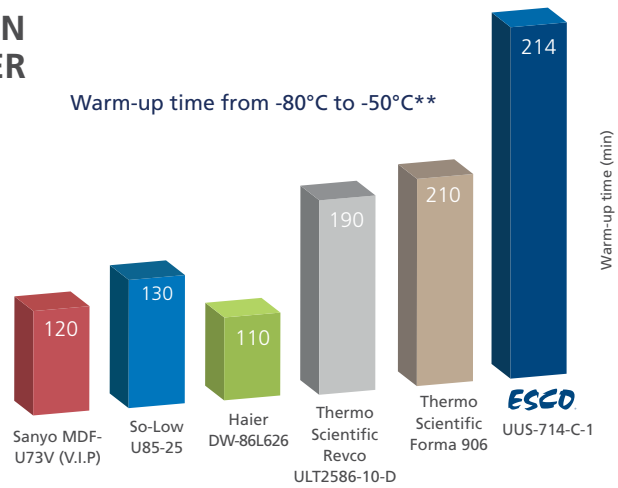
EXCELLENT UNIFORMITY

- Uniformity test measures the difference between the coldest spot and warmest spot in the freezer chamber when the freezer is operating at set temperature.
- Esco Lexicon® has excellent uniformity under normal operating conditions*. This guarantees that all samples are at the correct temperature.

SUPERIOR CABINET INSULATION DESIGN PROTECTS YOUR SAMPLES DURING A POWER FAILURE EVENT

EXTENDED WARM-UP TIME DURING A POWER FAILURE

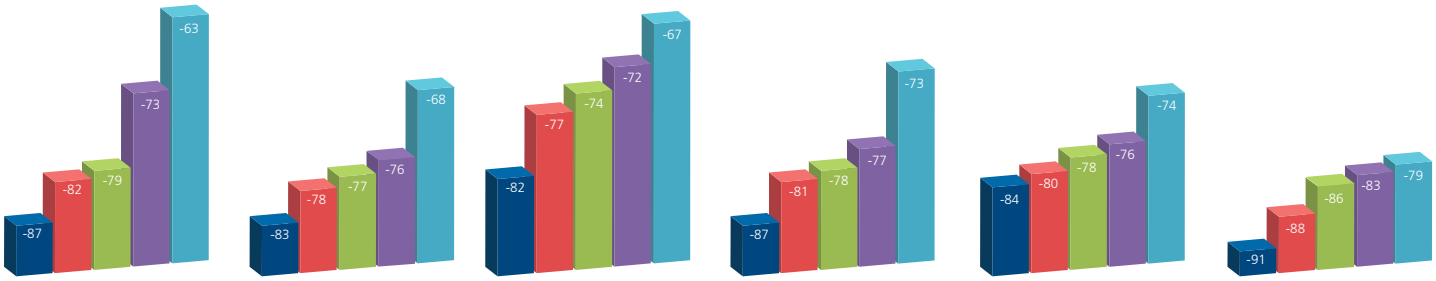
- Warm-up time measures the time taken for temperature to rise up (from -80°C to -50°C) when the power is interrupted.
- With a robust insulation system in place, Esco Lexicon® has the best warm-up time among the freezers compared on the right*. Slower warm-up during an extended power failure buys the user time for carrying out a back-up plan.



LARGE RESERVE CAPACITY

- Reserve capacity test records the lowest temperature the freezer is able to sustain when a heat source is placed in the freezer. This resembles real life situations when hot samples are placed in the freezer. The lower the temperature the freezer can sustain, the higher chance the freezer can maintain the set temperature when warm samples are placed in the freezer.
- Esco reserve capacity surpasses that of all major brands tested below.

BTU Reserve Average of 16 Probes**



Sanyo MDF- U73V (V.I.P), 230V 60Hz

So-Low U85-25, 208V, 60Hz

Haier DW-86L626, 220V, 50Hz

Thermo Scientific Revco ULT2586-10-D, 220V, 60Hz

Thermo Scientific Forma 906, 230V, 50/60 Hz

UUS-714-C-1, 230V, 50Hz

LOW NOISE OPERATION

- According to OSHA 1910.95 Occupational Noise Exposure Regulation, the sound level of the work place has to fall below 90 dBA for an employee who works 8 hours/day.
- Total noise in a lab is highly dependent upon the equipment that emits the greatest amount of noise.
- Esco Lexicon^{z} ultra-low freezer has a noise level of approximately 56 dBA*. This ensures a quiet and pleasant working environment for lab users.

EASY TO SERVICE

- Embedded thermocouples in the foam for easy field troubleshooting.
- Filter driers are located at the deck for easy replacement.
- Adjustable main door hinge and latch.
- Condenser filter is conveniently located at the front of the freezer. This allows easy access for inspection, cleaning and/or changing.
- 5-year warranty on compressors, 3 years on complete system.

** Units were factory tested under controlled environmental conditions per Esco method. Esco does not guarantee identical results in the field under differing conditions. Original report available upon request. UUS-668A-1 units were used for all the tests above.*

*** Performance data are available upon request.*

TESTING AND CERTIFICATION

The Esco Lexicon Ultra-Low Temperature Freezer is listed by Underwriters Laboratory (UL), to meet the requirements of both the U.S. and Canada standards for electrical/mechanical integrity.

Lexicon® II

Ultra-low Temperature Freezers

INTRODUCTION

Constructed from high-quality proven components with energy-efficient refrigeration design, Esco Lexicon® II ULT freezers provide top notch protection that can withstand the test of time to guarantee the integrity of your samples.

KEY FEATURES

LEXICON® II ULTRA-LOW TEMPERATURE FREEZERS

Uncompromised Protection for Your Samples

Lexicon® II Ultra-low Temperature Freezers available in 4 sizes: 363L, 480L, 597L and 714L.

RELIABLE 5" INSULATION

With superb 5" thick insulation in place, Esco Lexicon cabinets provide superior performance.

UP TO 5 INDIVIDUAL INNER DOORS

- Up to 5 individual inner doors can be opened independently to minimize sample exposure.
- 1 continuous stainless steel hinge is used for excellent alignment of the inner doors to ensure a good seal.
- Compatibility with existing racking system from competitors.
- Magnetic door contact for rapid closure.

EXCELLENT DOOR SEALS

- Triple gasket seal provides maximum protection against thermal intrusion.

MODERN REFRIGERATION COMPONENTS

- High-performance reliable compressors.
- System is optimized to provide maximum efficiency in even the most extreme ambient conditions.

SAMPLE PORT

- 1" (25mm) diameter for easy access through wall
- Easy external monitoring port for redundant monitoring system.
- Optimally placed on top of the cabinet to eliminate thermal risk to your samples
- 2 sample ports configuration is available upon request.

QUALITY ESCO CONSTRUCTION

- Electrogalvanized steel with white oven-baked epoxy-polyester antimicrobial powder-coated finish.
- External surfaces are powder coated with Esco ISOCIDE™ to eliminate 99.9% of surface bacteria within 24 hours of exposure.
- Ensures healthier, safer and cleaner lab environment.

PRESSURE EQUALIZATION PORT (PEP)

- Heated port with spring-assisted mechanism to prevent icing on the vent
- Allows the freezer door to be opened shortly after adding samples.
- Located on the main door for easy cleaning

OPTIONAL CHART RECORDER

- Front-mounted.
- For independent temperature monitoring.
- Provides permanent record of thermal performance

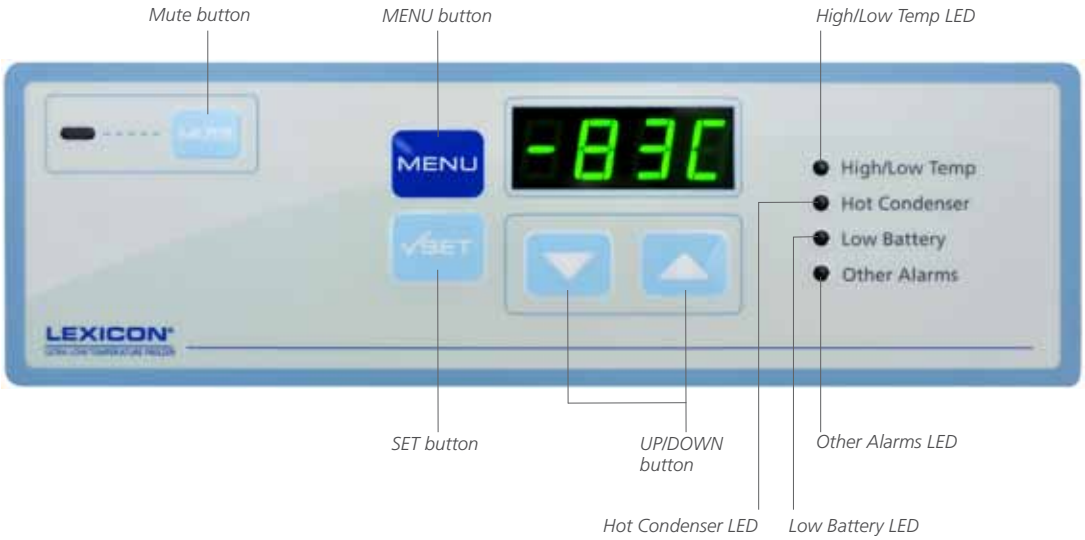
FRONT-MOUNTED CONDENSER FILTER

- Easily accessible without tools.
- Washable design saves money.

VARIETY OF SIZES AND CONTROLLERS TO MEET CUSTOMER NEEDS

AALTO SILVER CONTROLLER - a simple controller for users that just want the basics at an attractive price

- Simple, intuitive operation
- Large display of actual temperature.
- Clear indication of alarms



AALTO GOLD CONTROLLER - a powerful controller with more advanced features

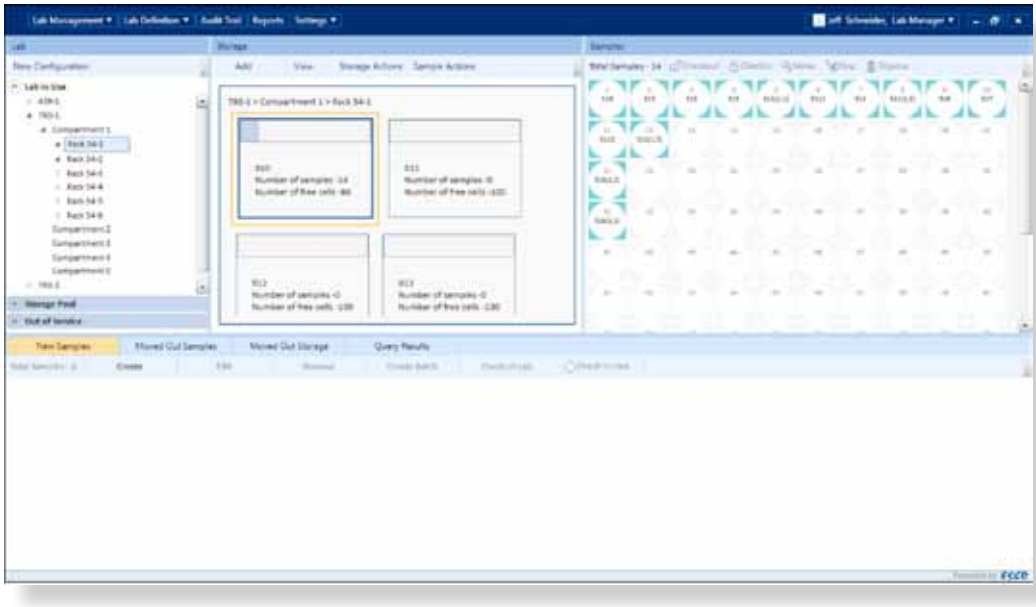
- Simple, intuitive operation
- Large display of actual temperature with a simultaneous display of set temperature and ambient temperature
- USB interface allows transfer of temperature data and the last 20 system events
- Advanced input voltage Buck/Boost transformer protects critical freezer components. Additional sample protection!!

AALTO PLATINUM CONTROLLER

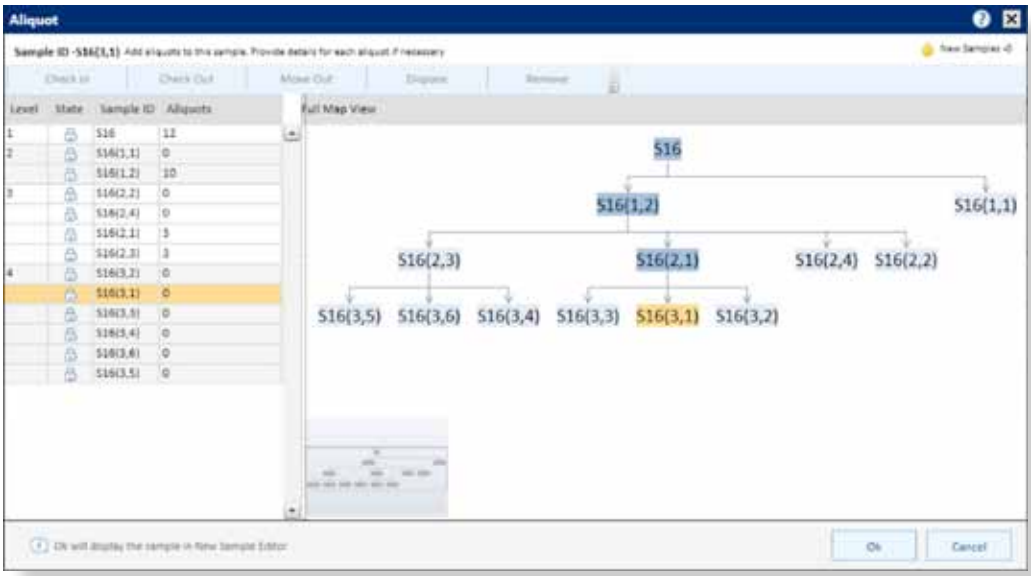
- Incorporates a TRUE predictive failure and health monitoring system that is able to monitor all critical aspects of the freezer and can predict future system concerns. The utmost in sample protection!
- Complete logging of system events for 15 years. Simple, easy viewing and transfer or data.
- Complete password/smartcard security system with administrator/user level hierarchy.
- Choice of a high performance operating mode or a new energy-saving freezer mode.
- Complete Wi-Fi and LAN network connectivity to communicate freezer conditions and to communicate with the SampleTracker Sample Inventory Database software.
- Easy cloning of freezer setup parameters by USB stick or by use of Voyager^{G3} central monitoring and control software
- Advanced input voltage Buck/Boost transformer protects critical freezer components. Additional sample protection!!
- Integrated camera, microphone, and speaker

SampleTracker SAMPLE INVENTORY SYSTEM TO TRACK ALL STORED LABORATORY SAMPLES

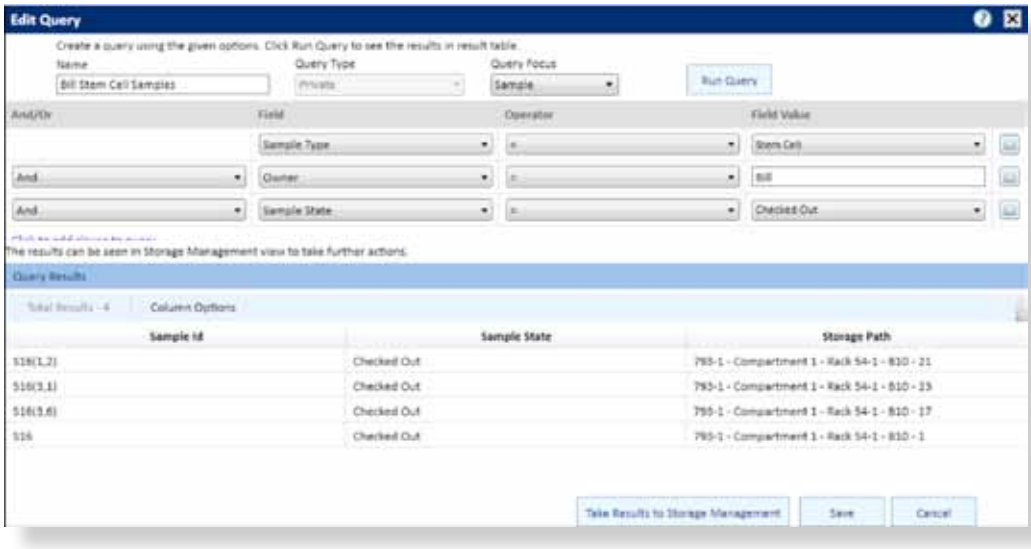
- SampleTracker is a multi-user program that provides a simple graphical interface to quickly perform all common sample handling tasks
- Use of templates allows easy lab/freezer configuration.
- No limit to the number of user defined fields.
- SampleTracker can be use independently for any brand and types of ult freezer.



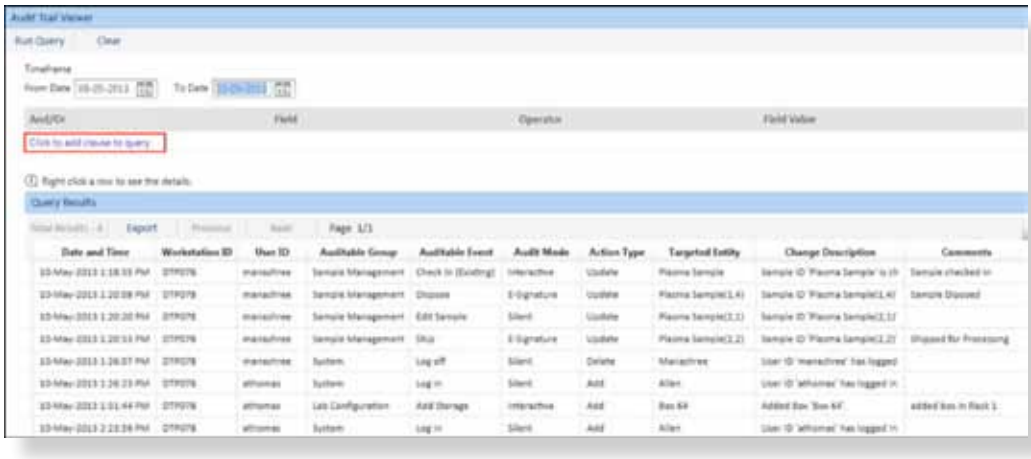
- Ability to make sample aliquots with complete graphical tracking of parents, daughter, and sub-daughter samples



- Powerful search engine allows for customized queries



- Complete audit trail capability with 21 CFR Part 11 compliance.



- Directly interfaces to the Lexicon II Aalto Platinum controller to perform searches and to check-out, check-in, and dispose of samples at the freezer. You can even attach photos of the samples taken at the freezer.

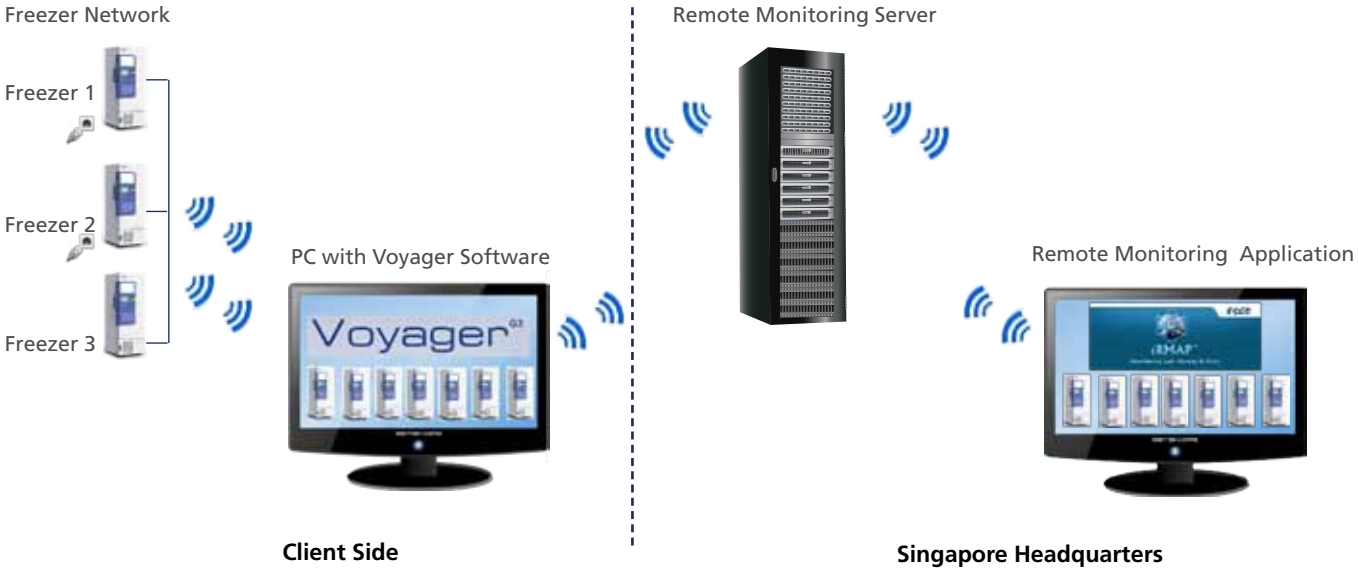
Voyager^{G3} - A CENTRALIZED MONITORING AND CONTROL SYSTEM FOR YOUR LABORATORY - EXTRA PROTECTION FOR YOUR SAMPLES.

- Allows easy, unified local freezer control and monitoring for proper operation from a central location via user established or
  local network – Voyager is securely kept inside the customer's facility. Data is inside the customer's firewall.
- Provides easy interface to the PC by USB, LAN cables, or Wi-Fi.
- Allows cloning of Aalto freezer setup profiles to multiple freezers from a single location. Can control multiple Esco products from a central location.
- Voyager^{G3} automatically detects the Aalto Platinum controller on the facility network.
- Allows monitoring of Esco freezers and other Esco products. If a critical condition is detected, Voyager^{G3} will provide alarming and user notification.
- NEW – Voyager^{G3} interfaces with intelligent Remote Monitoring Application software.

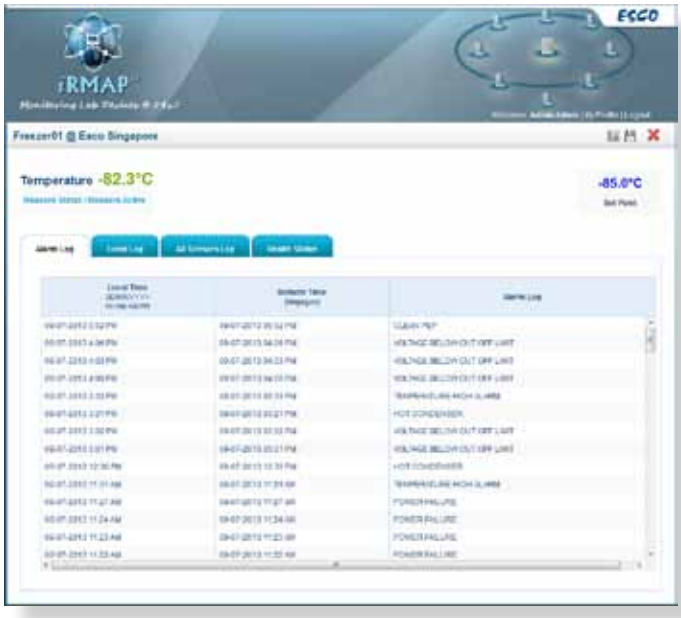
• Ability to generate reports and graph of different device parameters
• Protect the samples by providing alarms when exceeding a user-defined parameter limit via automatic email alerts
Reports
• Ability to save and report log data in various formats
• Easy PC interface using USB, LAN cables or via Wi-Fi
• Allows all Esco thermostatic products to be connected and monitored for proper operation from a central location
ESCO

ESCO INTELLIGENT REMOTE MONITORING APPLICATION PROTOCOL (iRMAP) SERVICE – LET ESCO HELP PROTECT WHAT IS IMPORTANT TO THE LABORATORY.

- With iRMAP optional service, Esco will remotely monitor your Esco freezers in case of issues that might threaten your samples, Esco will call the supplied customer contact to provide assistance.

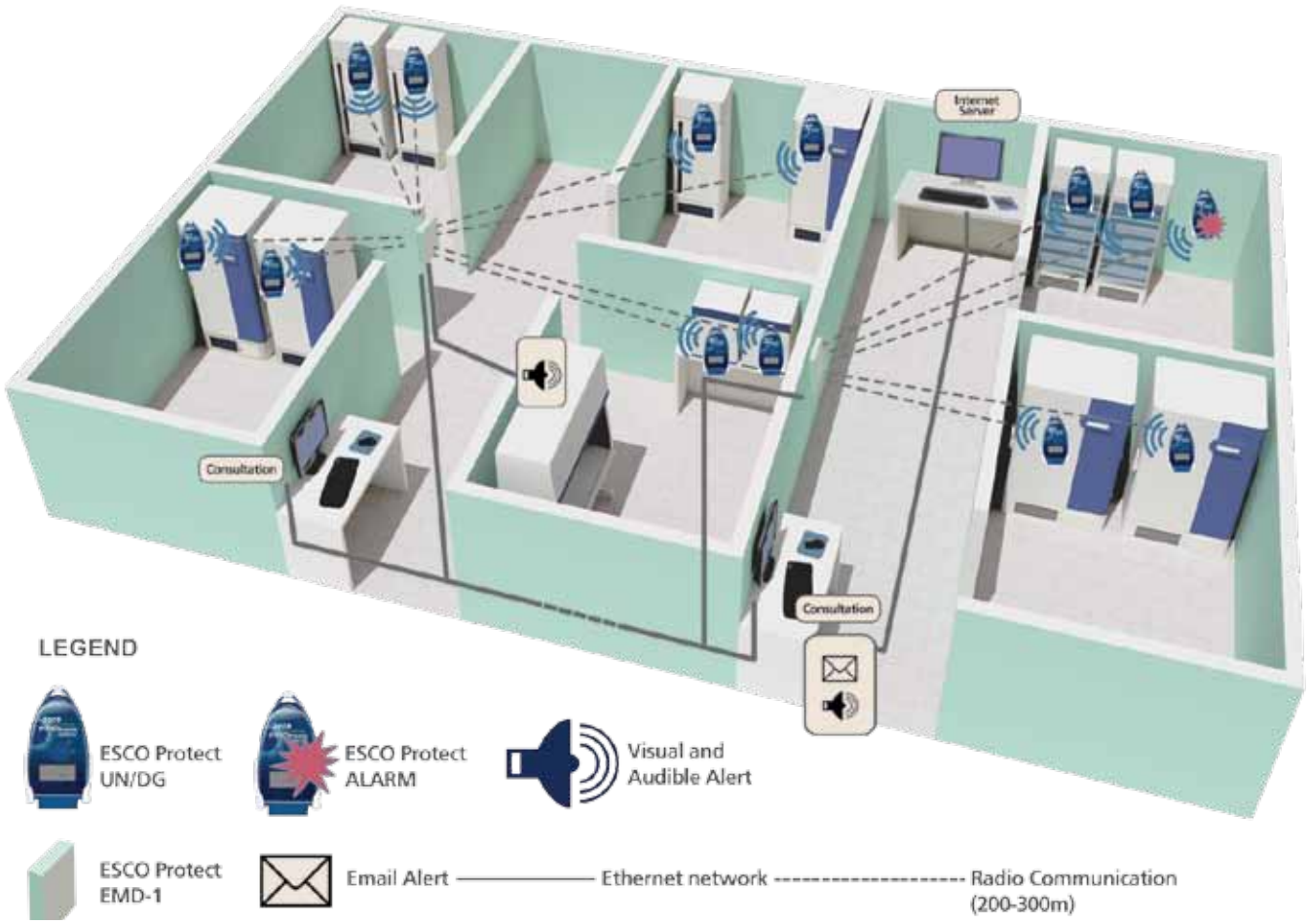


- iRMAP allows Esco to guard your samples 24 hours a day/7 days a week. Esco can even provide proactive service response if the predictive failure monitoring system finds a fault in your Esco freezer.
- Any data relayed to Esco servers are encrypted not once but twice for security!



PROtect – COMPLETELY INDEPENDENT/REDUNDANT SAMPLE MONITORING SYSTEM –A CRITICAL PART TO PROVIDE ULTIMATE SAMPLE PROTECTION.

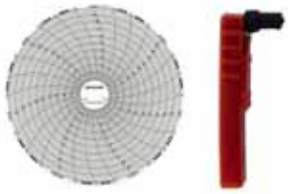
- PROtect is an independent and redundant monitoring system that is a critical piece of the sample protection strategy.
- PROtect has no dependency on the freezer electronics so in the event of a catastrophic failure that would prevent all other systems from notifying the user, PROtect can provide the necessary alerts to protect your irreplaceable samples.
- Wireless. Uses radio frequencies (RF) for maximum battery life and transmission distance.
- Can be used in ULT freezers (-86C), cryogenic applications (-196C), and standard lab refrigerators (+4C) and freezers (-30 to -40C)
- Can be used with other products with an application specific interface or analog output
- Can be used to monitor up to 99 systems on a single software package or more systems/multiple locations with an optional software package
- Software can send email alerts or trigger an optional audible alarm



OPTIONS AND ACCESSORIES

6" Chart Recorder, Temp, 115/230VAC 50/60HZ

The chart recorder provides an easy-to-read graph of data vs time. It is a reliable, accurate, and stable instrument, for on-the-spot written documentation of freezer chamber temperature. This model offers a 6" chart of temperature data.



Temperature Chart and Pen Replacements for 6" Chart Recorder

- 6" Temperature Chart, 7day, 60/pack
- Chart Recorder Pen Replacement 6pens/pack

Standard Cardboard 2-inch Box

Fiberboard boxes have the dimension of 5.25"X5.25"X2" (or 130 X130X50 mm). All boxes do not come with dividers. Dividers have to be ordered separately.

Standard Cardboard 3-inch Box

Fiberboard boxes have the dimension of 5.25"X5.25"X3" (or 130 X130X80 mm). All boxes do not come with dividers. Dividers have to be ordered separately.

Additional shelving kit

Each Lexicon® ULT freezer comes standard with 4 shelves and 16 clips. Extra shelves are available and each shelf comes with 4 clips.

Standard Cardboard 100-cell Divider

100-cell Dividers are made of 10X10, 7/16" cells and each divider holds 100 12 mm wide vials.

Standard Cardboard 81-cell Divider

81-cell Dividers are made of 9X9, 1/4" cells and each divider holds 81 13mm wide vials.

Standard Cardboard 64-cell Divider

64-cell Dividers are made of 8X8, 9/16" cells and each divider holds 64 14mm wide vials.

Standard Cardboard 49-cell Divider

49-cell Dividers are made of 7X7, 5/8" cells and each divider holds 49 16mm wide vials.

Modifiable Clip Rack for Standard 2-inch and/or 3-inch Boxes (Lexicon I: UUS-552/668/793 model and Lexicon II: UUS-363/480/597/714)

The modifiable clip rack with 4 x 4 configuration (137 x 555 x 240 mm) and 7 x 4 configuration (137 x 555 x 408.5 mm) is able to fit standard 5.25" x 5.25" x 2" (130 X 130 X 50 mm) boxes and/ or standard 5.25" x 5.25" x 3" (130 X 130 X 80 mm) boxes by changing the position of the clips. It is made of stainless steel and has handles. Each rack includes 6 L-Clips and 9 T-Clips.

Drawer type rack for 2-inch and/or 3-inch Boxes

- 2" Drawer type rack for (4 x 4 configuration) for Lexicon II models
- 2" Drawer type rack for (7 x 4 configuration) for Lexicon II models
- 3" Drawer type rack for (4 x 4 configuration) for Lexicon II models
- 3" Drawer type rack for (7 x 4 configuration) for Lexicon II models

OPTIONS AND ACCESSORIES

LCO_2 Back-up System / LN_2 Back-up System

LCO_2 / LN_2 back-up system injects liquid CO_2/N_2 on demand when cabinet temperature warms to a pre-set level. Back-up system kits include all hardware except the supply cylinder. In the event of a power failure the system will operate on a charged battery.

- Display Temp. Range: -40 to -70°C
- Resolution: 1°C
- Audio & visual alarms

SMS Module System

GPRS/GSM Modem accessory for SMS Alerts on Esco Lexicon ULT freezers. The GPRS/GSM Modem is an optional accessory and is compatible with Lexicon II with Aalto Gold Controller.

Ice Scraper

Ice scraper is available for cleaning ice built up on door gasket, PEP and other places in the freezer.

SampleTracker

Sample inventory system to track all stored laboratory samples.

Cryo Safety Gloves

Mid-arm style cryo safety gloves are available for use with ultra-cold surfaces. Cryo safety gloves protect hands and arm when inserting or removing inventory.

iRMAP - Intelligent Remote Monitoring Application Protocol

iRMAP also allows for an additional optional service to allow Esco to monitor freezers from a remote location and then to proactively dispatch service to correct pending and future freezer issues that could threaten customer samples.

IQ/OQ Protocol

IQ/OQ protocol document is available for verifying that the equipment has been installed in accordance with installation specifications and is functioning and operating at the intended operational parameters.

PROtect - Redundant Wireless Sample Monitoring System

A completely redundant, sample monitoring system to provide the utmost protection of precious samples.

Voyager Software Kit

Esco Voyager is a PC-based software package developed for the remote monitoring, datalogging and programming / device configuration of Esco controlled environment laboratory equipment. Compatible equipment includes Laboratory Ovens and Incubators, Low Temperature Incubator, CO_2 Incubators and Ultra-low Temperature Freezer

ORDERING INFORMATION

UNITS ORDERING

MODELS	DESCRIPTION (LEXICON II AALTO SILVER CONTROLLER WITH STANDARD EG CHAMBER WITH 3 INNER DOORS)
UUS-363-A-1	Ultra low temp. freezer; Upright; 13 cu. Ft (363L); Aalto Silver Controller ; 3 Inner Doors; 230V. 50 Hz
UUS-480-A-1	Ultra low temp. freezer; Upright; 17 cu. Ft (480L); Aalto Silver Controller ; 3 Inner Doors; 230V. 50 Hz
UUS-597-A-1	Ultra low temp. freezer; Upright; 21 cu. Ft (597L); Aalto Silver Controller ; 3 Inner Doors; 230V. 50 Hz
UUS-714-A-1	Ultra low temp. freezer; Upright; 25 cu. Ft (714L); Aalto Silver Controller ; 3 Inner Doors; 230V. 50 Hz
MODELS	**DESCRIPTION (LEXICON II AALTO GOLD CONTROLLER WITH STANDARD EG CHAMBER WITH 3 INNER DOORS)**
UUS-363-B-1	Ultra low temp. freezer; Upright; 13 cu. Ft (363L); Aalto Gold Controller ; 3 Inner Doors; 230V. 50 Hz
UUS-480-B-1	Ultra low temp. freezer; Upright; 17 cu. Ft (480L); Aalto Gold Controller ; 3 Inner Doors; 230V. 50 Hz
UUS-597-B-1	Ultra low temp. freezer; Upright; 21 cu. Ft (597L); Aalto Gold Controller ; 3 Inner Doors; 230V. 50 Hz
UUS-714-B-1	Ultra low temp. freezer; Upright; 25 cu. Ft (714L); Aalto Gold Controller ; 3 Inner Doors; 230V. 50 Hz

MODELS	DESCRIPTION (LEXICON II AALTO GOLD CONTROLLER WITH SS CHAMBER WITH 3 INNER DOORS)
UUS-363B-1-SS	Ultra low temp. freezer; Upright; 13 cu. Ft (363L); Aalto Gold Controller ; 3 Inner Doors; SS Chamber; 230V. 50 Hz
UUS-480B-1-SS	Ultra low temp. freezer; Upright; 17 cu. Ft (480L); Aalto Gold Controller ; 3 Inner Doors; SS Chamber; 230V. 50 Hz
UUS-597B-1-SS	Ultra low temp. freezer; Upright; 21 cu. Ft (597L); Aalto Gold Controller ; 3 Inner Doors; SS Chamber; 230V. 50 Hz
UUS-714B-1-SS	ltra low temp. freezer; Upright; 25 cu. Ft (714L); Aalto Gold Controller ; 3 Inner Doors; SS Chamber; 230V. 50 Hz

MODELS	DESCRIPTION (LEXICON II AALTO SILVER CONTROLLER WITH STANDARD EG CHAMBER WITH 5 INNER DOORS)
UUS-363A-1-5D	Ultra low temp. freezer; Upright; 13 cu. Ft (363L); Aalto Silver Controller ; 5 Inner Doors; 230V. 50 Hz
UUS-480A-1-5D	Ultra low temp. freezer; Upright; 17 cu. Ft (480L); Aalto Silver Controller ; 5 Inner Doors; 230V. 50 Hz
UUS-597A-1-5D	Ultra low temp. freezer; Upright; 21 cu. Ft (597L); Aalto Silver Controller ; 5Inner Doors; 230V. 50 Hz
UUS-714A-1-5D	Ultra low temp. freezer; Upright; 25 cu. Ft (714L); Aalto Silver Controller ; 5 Inner Doors; 230V. 50 Hz

MODELS	DESCRIPTION (LEXICON II AALTO GOLD CONTROLLER WITH STANDARD EG CHAMBER WITH 5 INNER DOORS)
UUS-363B-1-5D	Ultra low temp. freezer; Upright; 13 cu. Ft (363L); Aalto Gold Controller ; 5 Inner Doors; 230V. 50 Hz
UUS-480B-1-5D	Ultra low temp. freezer; Upright; 17 cu. Ft (480L); Aalto Gold Controller ; 5 Inner Doors; 230V. 50 Hz
UUS-597B-1-5D	Ultra low temp. freezer; Upright; 21 cu. Ft (597L); Aalto Gold Controller ; 5 Inner Doors; 230V. 50 H
UUS-714B-1-5D	Ultra low temp. freezer; Upright; 25 cu. Ft (714L); Aalto Gold Controller ; 5 Inner Doors; 230V. 50 Hz

MODELS	DESCRIPTION (LEXICON II AALTO PLATINUN CONTROLLER WITH STANDARD SS CHAMBER WITH 3 INNER DOORS)
UUS-363-C-1	Ultra low temp. freezer; Upright; 13 cu. ft (363L); Aalto Platinum Controller;3 inner Doors; 230V, 50 hz
UUS-480-C-1	Ultra low temp. freezer; Upright; 17 cu. ft (480L); Aalto Platinum Controller;3 inner Doors; 230V, 50 hz
UUS-597-C-1	Ultra low temp. freezer; Upright; 21 cu. ft (597L); Aalto Platinum Controller; 3 inner Doors; 230V, 50 hz
UUS-714-C-1	Ultra low temp. freezer; Upright; 25 cu. ft (714L); Aalto Platinum Controller;3 inner Doors; 230V, 50 hz

MODELS	DESCRIPTION (LEXICON II AALTO PLATINUN CONTROLLER WITH STANDARD SS CHAMBER WITH 5 INNER DOORS)
UUS-363-C-1-5D	Ultra low temp. freezer; Upright; 13 cu. ft (363L); Aalto Platinum Controller;5 Inner Doors; 230V, 50 hz
UUS-480-C--5D	Ultra low temp. freezer; Upright; 17 cu. ft (480L); Aalto Platinum Controller;5 Inner Doors; 230V, 50 hz
UUS-597-C-1-5D	Ultra low temp. freezer; Upright; 21 cu. ft (597L); Aalto Platinum Controller; 5 Inner Doors; 230V, 50 hz
UUS-714-C-1-5D	Ultra low temp. freezer; Upright; 25 cu. ft (714L); Aalto Platinum Controller;5 Inner Doors; 230V, 50 hz

ACCESSORIES ORDERING

ACCESSORIES	DESCRIPTION
1080585-U	Accessory, Chart Recorder, 115/230VAC 50/60HZ
1120240-U	SMS Module System
	SampleTracker
	PROtect
5170526-U	Freezer Accessory, Modifiable Clip Rack for Standard 2-inch High Boxes and/or 3-inch High Boxes for Lexicon I (552L, 668L, 793L) and Lexicon II (363L, 480L, 597L and 714L) with 5 Inner Door Configuration (Dimension (WxDxH): 137mm x 555 mm x 240 mm)
5170527-U	Freezer Accessory, Modifiable Clip Rack for Standard 2-inch High Boxes and/or 3-inch High Boxes for Lexicon II (363L, 480L, 597L and 714L) with 3 Inner Door Configuration (Dimension (WxDxH): 137mm x 555 mm x 408.5 mm)
5070901-U	Freezer Accessory, Additional shelving kit for 363L
5070902-U	Freezer Accessory, Additional shelving kit for 480L
5070903-U	Freezer Accessory, Additional shelving kit for 597L
5070904-U	Freezer Accessory, Additional shelving kit for 714L
1180061-U	Accessory, Standard Cardboard 2-inch Box
1180062-U	Accessory, Standard Cardboard 3-inch Box
1180063-U	Accessory, Standard Cardboard 100-Cell Divider
1180064-U	Accessory, Standard Cardboard 81-Cell Divider
1180065-U	Accessory, Standard Cardboard 64-Cell Divider
1180066-U	Accessory, Standard Cardboard 49-Cell Divider
5170438-U	Accessory, LCO_2 back-up system
5170357-U	Accessory, LN_2 back-up system
9010103-U	Accessory, Ice Scraper
9010102-U	Accessory, Cryo Safety Gloves
9010101-U	Accessory, IQ/OQ Documentation
1260016-U	2" Drawer type rack for Lexicon II (363L, 480L, 597L and 714L) with 5 Inner Door Configuration
1260018-U	3" Drawer type rack for Lexicon II (363L, 480L, 597L and 714L) with 5 Inner Door Configuration
5250001-U	Voyager Software Kit
1260019-U	6" Temperature Chart, 7day, 60/pack
1260020-U	Chart Recorder Pen Replacement 6 pens/pack

GENERAL SPECIFICATIONS

ULTRA-LOW TEMPERATURE FREEZERS

	UUS-363A-1 UUS-363B-1 UUS-363C-1	UUS-480A-1 UUS-480B-1 UUS-480C-1	UUS-597A-1 UUS-597B-1 UUS-597C-1	UUS-714A-1 UUS-714B-1 UUS-714C-1
Temperature Range	-50 to -86°C			
Ambient Temperature Range	15 to 32°C (59 to 89°F)			
Cpacity	363 L (12.8 cu ft)	480 L (16. 9 cu ft)	597 (21.1 cu ft)	714 (25.2 cu ft)
Energy Consumption	16.0 kWh/day	17.5 kWh/day	18.1 kWh/day	19.4 kWh/day
Heat Emission	0.72 kW	0.81 kW	0.86 kW	0.96 kW
Pull Down Time In Minutes (from amb to -80)	235.5	244	284	374
Temperature Recovery Time After 1 Minute Door Opening	20 minutes	32 minutes	37 minutes	45 minutes
Warmest Temperature After 1 Minute Door Opening	(-) 76.7 °C	(-) 77 °C	(-) 73 °C	(-) 75.9 °C
Average Uniformity of Cycle (-80°C)	3.2 °C	3.7 °C	4.7 °C	7.6 °C
Warm-up Time from -80°C to -50°C (Minutes)	201	229	237	214
Reserve Capacity at 0 Watt	-87.1	-89.2	-87.8	-91
Reserve Capacity at 40 Watt	-85.1	-86.5	-85.8	-88
Reserve Capacity at 60 Watt	-82.8	-80.9	-83.1	-86
Reserve Capacity at 90 Watt	-77.9	-77.5	-80.1	-83
Reserve Capacity at 0 Watt	-73.2	-74.2	-76.4	-79
Noise Level in dB	55.9	56.3	56.1	59.1
External Dimension (W x D x H)	710 X 885 X 1980 mm (28" x 34.8" x 78")	855 X 885 X 1980 mm (33.6" x 34.8" x 78")	1000 X 885 X 1980 mm (39.3" x 34.8" x 78")	1145 X 885 X 1980 mm (45" x 34.8" x 78")
True Dimensions Silver	805 x 945 x 1980 mm (31.6" x 37.2" x 78")	950 x 945 x 1980 mm (37.3" x 37.2" x 78")	1095 x 945 x 1980 mm (43.1" x 37.2" x 78")	1240 x 945 x 1980 mm (48.8" x 37.2" x 78")
True Dimensions Gold	805 x 945 x 1980 mm (31.6" x 37.2" x 78")	960 x 945 x 1980 mm (37.3" x 37.2" x 78")	1095 x 945 x 1980 mm (43.1" x 37.2" x 78")	1240 x 945 x 1980 mm (48.8" x 37.2" x 78")
True Dimensions Platinum	815 x 945 x 1980 mm (32" x 37.2" x 78")	950 x 945 x 1980 mm (37.3" x 37.2" x 78")	1105 x 945 x 1980 mm (45.1" x 37.2" x 78")	1250 x 945 x 1980 mm (49.2" x 37.2" x 78")
Internal Dimensions	450 x 620 x 1300 mm (17.7" x 24.4" x 51.1")	595 x 620 x 1300 mm (23.4" x 24.4" x 51.1")	740 x 620 x 1300 mm (29.1" x 24.4" x 51.1")	885 x 620 x 1300 mm (34.8" x 24.4" x 51.1")
Electrical Rating	12/13A 230V 50 Hz 1Ø	12/13A 230V 50 Hz 1Ø	12/13A 230V 50 Hz 1Ø	12/13A 230V 50 Hz 1Ø
Number of Outer Door	1			
Number of Inner Doors	3 or 5			
No. of storage racks per shelf	3	4	5	6
No. of storage racks per unit	9	12	15	18
Storage box capacities for 2" cardboard boxes (With Modifiable Clip Rack)	252	336	420	504
Storage box capacities for 3" cardboard boxes (With Modifiable Clip Rack)	180	240	300	360
Storage box capacities for 2" cardboard boxes (With Drawer Type Rack)	240	320	400	480
Storage box capacities for 3" cardboard boxes (With Drawer Type Rack)	180	240	300	360
Shelves material	SS304 0.9mm		SS304 1.2mm	
Shelves Area	438 x 570 mm (17.2" x 22.4")	583 x 570 mm (22.9" x 22.4")	728 x 570 mm (28.6" x 22.4")	873 x 570 mm (34.3" x 22.4")
Max Load of per shelf	50kg (110 lbs) per shelf		90kg (198 lbs) per shelf	
Net Weight	271 (597 lbs)	300 (661 lbs)	305 (672 lbs)	350 (772 lbs)
Shipping Weight	410 kg (707 lbs)	350 kg (771 lbs)	358 kg (790 lbs)	410 kg (903 lbs)
Shipping Dimensions (W x D x H)	850 x 1068 x 2121 mm (33.4" x 42" x 83.5")	990 x 1068 x 2121 mm (38.9" x 42" x 83.5")	1130 x 1068 x 2121 mm (44.4" x 42" x 83.5")	1280 x 1068 x 2121 mm (50.3" x 42" x 83.5")

Notes:
Units were factory tested under under controlled environmental conditions per Esco method. Esco does not guaranteed identical results in the field under differing conditions.
Units were tested using 3 inner door configuration and without samples inside.
Original reports are available upon request.

ART Equipment
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Esco Technologies, Inc. • 2940 Turnpike Drive, Units 15-16 • Hatboro, PA 19040, USA
Toll-Free USA and Canada 877-479-3726 • Tel 215-441-9661 • Fax 215-441-9660
us.escoglobal.com • usa@escoglobal.com

Esco Micro Pte. Ltd. • 21 Changi South Street 1 • Singapore 486 777
Tel +65 6542 0833 • Fax +65 6542 6920 • mail@escoglobal.com
www.escoglobal.com

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